

Version with Markings to Show Changes Made

1. (Amended) A process in which a first hydroxyl-substituted organic compound selected from the formulae R_4CH_2OH R^1CH_2OH , R^1R^2CHOH and $R^1R^2R^3COH$ is exposed, optionally in the presence of one or more further organic compounds selected from second hydroxyl-substituted organic compounds of the formulae R^4CH_2OH , R^5R^6CHOH , and $R^7R^8R^9COH$ and carbonyl compounds of the formula $R^{10}R^{11}CO$, to a heterogeneous catalyst which is able to provide a source of acid in a continuous flow reactor under supercritical conditions or at near-critical conditions for the fluid that is acting as solvent, with the result that an ether is formed from two hydroxyl-substituted organic compound molecules in a dehydration reaction, an acetal or ketal is formed by reaction between a hydroxyl-substituted organic compound molecule and a molecule of a said carbonyl compound and alkene product is produced by dehydration of a single hydroxyl-substituted organic compound molecule, wherein the conditions of temperature, pressure, and flow rate are controlled according to the product to be obtained, and wherein each of R^1 to R^{11} is independently selected from: hydrogen or hydroxyl; an optionally substituted alkyl, alkenyl, alkynyl, aralkyl, cycloalkyl, cycloalkenyl, or aryl; or a heterocyclic group.

4. (Amended) A process according to claim 1, ~~2 or 3~~, wherein the total number of alcohol groups within the first organic compound does not exceed three.

5. (Amended) A process according to any preceding claim 1, wherein the reaction is performed under supercritical conditions.

6. (Amended) A process according to any preceding claim 1, wherein the first organic compound of formula R^1CH_2OH , R^1R^2CHOH , or $R^1R^2R^3COH$, and optionally one or more of the second compounds of formulae R^4CH_2OH , R^5R^6CHOH , $R^7R^8R^9COH$, or $R^{10}R^{11}CO$, is dissolved in a fluid selected from: carbon dioxide, propane, an alkene, an alkyne, hydrocarbon, halocarbon, nitrogen, or a mixture of any of these.

7. (Amended) A process according to ~~any one of claims 1 to 5~~ claim 1, wherein the first organic compound is the supercritical or near-critical fluid.

8. (Amended) A process according to ~~any preceding~~ claim 1, wherein the catalyst is selected from: zeolites, metal oxides, molecular sieves, clays, or sulfonic acid derivatives.

10. (Amended) A process according to claim 8-~~or~~~~9~~, wherein the catalyst includes a promoter.

11. (Amended) A process according to ~~any of claims 8, 9 or 10~~ claim 8, wherein the acidity of the catalyst is provided by a sulfonic acid group.

12. (Amended) A process according to ~~any preceding~~ claim 1, wherein the reactant molecules are aliphatic and/or aromatic alcohols.

13. (Amended) A process according to ~~any preceding~~ claim 1, in which the product is an ether.

15. (Amended) A process according to claim 11-~~or~~~~12~~, wherein an aliphatic alcohol is converted into an alkene.

16. (Amended) A process according to ~~any preceding~~ claim 1, in which the reactant(s) is(are) from a single homogeneous phase.